

**ABSTRACT**

Process and apparatus for the preparation of synthesis gas by catalytic steam and/or CO<sub>2</sub> reforming of a hydrocarbon feedstock comprising the following steps:

- (a) heating the reaction mixture of hydrocarbon feedstock and steam and/or CO<sub>2</sub> in the flue gas containing waste heat section from the fired tubular reformer
  - (b) adiabatic reforming of the reaction mixture outside the waste heat section by contact with a solid reforming catalyst
  - (c) repeating steps (a) and (b) until the desired reaction mixture composition and temperature is reached
  - (d) feeding the reaction mixture to the fired tubular reformer and further reforming the mixture to the desired composition and temperature,
- wherein the adiabatic reforming of the reaction mixture is conducted in the process gas piping system in the flue gas-containing waste heat section, the piping system having adiabatic zones outside the heating section and containing solid reforming catalysts comprising one or more catalysed structured elements.